

## CLAIMS

What is claimed is:

1. An explosive material comprising:  
a first quantity of explosive admixed with a second quantity of explosive, said first quantity of explosive comprising particles having a larger diameter than the particles of said second quantity of explosive.
2. The explosive material of claim 1, wherein the combination of said explosives produces an explosive mixture whose fixed volume has a density greater than 90% of the theoretical mean density of the explosive material.
3. The explosive material of claim 1 encapsulated within a bonding agent to form a pelletized explosive.
4. The explosive material of claim 1 whose pressed density is from approximately 96% to approximately 98% of its theoretical mean density.
5. The explosive material of claim 1, wherein said first quantity of explosive is selected from the group consisting of HMX, PBX, TATB, PYX, HNS or DATB.
6. The explosive material of claim 1, wherein said second quantity of explosive is selected from the group consisting of HMX, PBX, TATB, PYX, HNS or DATB.
7. The explosive material of claim 1, where said first quantity of explosive consists of particles having a diameter that ranges from approximately 300 microns to approximately 45 microns.
8. The explosive material of claim 1, where said first quantity of explosive consists of Class I explosive.

- 1 9. The explosive material of claim 1, where said second quantity of explosive consists of  
2 particles having a diameter that ranges from approximately 5 microns to approximately 7  
3 microns.
- 4 10. The explosive material of claim 1, where said second quantity of explosive consists of  
5 Class V explosive.
- 6 11. The explosive material of claim 1, where said second quantity of explosive has a  
7 distribution of particles such that 90% of the particles have a diameter of less than 10  
8 microns.
- 9 12. The explosive material of claim 1 comprising approximately 50% by weight of said first  
10 quantity of explosive and approximately 50% by weight of said second quantity of  
11 explosive.
- 12 13. The explosive material of claim 1 comprising from approximately 25% to 75% by weight  
13 of said first quantity of explosive and from approximately 25% to 75% by weight of said  
14 second quantity of explosive.
- 15 14. A shaped charge comprising:  
16 a housing;  
17 a liner; and  
18 an explosive material positioned between said housing and said liner, said explosive  
19 material comprising a first quantity of explosive consisting of a large particulate size  
20 explosive admixed with a second quantity of explosive consisting of a small particulate  
21 size explosive such that the combination of said explosives produces an explosive  
22 mixture whose fixed volume has a density greater than said first quantity of explosive or  
23 said second quantity of explosive.

- 1 15. The explosive material of claim 14 encapsulated within a bonding agent to form a  
2 pelletized explosive.
- 3 16. The explosive material of claim 14 whose bulk density is from approximately 96% to  
4 approximately 98% of its theoretical mean density.
- 5 17. The explosive material of claim 14, wherein said first quantity of explosive is selected  
6 from the group consisting of HMX, PBX, TATB, PYX, HNS or DATB.
- 7 18. The explosive material of claim 14, wherein said second quantity of explosive is selected  
8 from the group consisting of HMX, PBX, TATB, PYX, HNS or DATB.
- 9 19. The explosive material of claim 14, where said first quantity of explosive consists of  
10 particles having a diameter that ranges from approximately 300 microns to approximately  
11 45 microns.
- 12 20. The explosive material of claim 14, where said first quantity of explosive consists of  
13 Class I explosive.
- 14 21. The explosive material of claim 14, where said second quantity of explosive consists of  
15 particles having a diameter that ranges from approximately 5 microns to approximately 7  
16 microns.
- 17 22. The explosive material of claim 14, where said second quantity of explosive consists of  
18 Class V explosive.
- 19 23. The explosive material of claim 14, where said second quantity of explosive has a  
20 distribution of particles such that 90% of the particles have a diameter of less than 10  
21 microns.

- 1      24.      The explosive material of claim 14 comprising approximately 50% by weight of said first  
2                   quantity of explosive and approximately 50% by weight of said second quantity of  
3                   explosive.
- 4      25.      The explosive material of claim 14 comprising from approximately 25% to 75% by  
5                   weight of said first quantity of explosive and from approximately 25% to 75% by weight  
6                   of said second quantity of explosive.
- 7      26.      A method of forming an explosive material comprising the steps of:  
8                   blending a first quantity of explosive of a large particulate size with a second quantity of  
9                   explosive of a small particulate size to produce a blended explosive material whose fixed  
10                  volume has a density greater than 90% of the theoretical mean density of the explosive  
11                  material.
- 12     27.      The method of claim 26 further comprising mixing said blended explosive material with  
13                  a fluid in a vessel to produce a slurry, heating the slurry to initiate an encapsulation  
14                  process, adding an encapsulation agent to the slurry, mixing the slurry and encapsulation  
15                  agent together, and terminating the nucleation process when granulated explosive pellets  
16                  are formed whose diameter are approximately 1000 microns to approximately 2000  
17                  microns.
- 18     28.      The method of claim 26 further comprising blending said explosive material to produce a  
19                  pressed density of from approximately 96% to approximately 98% of its theoretical mean  
20                  density.
- 21     29.      The method of claim 26 further comprising blending 50% by weight of said first quantity  
22                  of explosive and blending 50% by weight of said second quantity of explosive.

1     30.     The method of claim 29 where said first quantity of explosive consists of Class I  
2           explosive having particle sizes of approximately 45 to 300 microns and said second  
3           quantity of explosive consists of Class V explosives having particle sizes of  
4           approximately 5 to 7 microns.